



**TEMPEST**  
lighting inc.

# User Manual

## Twister Compact Moving Light Enclosures



*Featuring MiniDEC™ Control Technology*

**Tempest Lighting, Inc.**  
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For the following products,  
manufactured after March 2012

Twister 1800  
Twister 1850  
Twister 1900  
Twister 1950

*In the interest of continuous product improvement, the information in this document is subject to change without notice. Neither Tempest Lighting, Inc. nor its representatives or agents may be held liable for expense or injury arising from it.*

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October, 2012



## Declaration of Conformity

This is to certify that the following products

**1800.IN Twister 1800 Enclosure**  
**1850.IN Twister 1850 Enclosure**  
**1900.IN Twister 1900 Enclosure**  
**1950.IN Twister 1950 Enclosure**

are in Compliance with the following standards or specifications according to the Electro Magnetic Compatibility Directive 2004/108/EC.

**EN55015, Cisp r 16**

and are in compliance with the following standards or specifications according to the Low Voltage Directive 2006/95/EC.

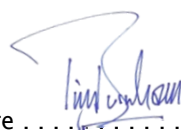
**EN60598-1**

This declaration is made by the manufacturer

**Tempest Lighting, Inc.**  
**5401 Bevis Avenue**  
**Sherman Oaks, CA 91411, USA**

This declaration is based on tests that were conducted on the submitted samples of the above mentioned products. Detailed results can be referred to test reports C27963\_03, C27963\_04, C27963\_06, C27963\_07

Dated: August 1<sup>st</sup>, 2012

  
Signature .....  
Tempest Lighting Inc



# 1 Introduction

Thank you for purchasing the Twister enclosure. It will serve you for many years, protecting your stage spotlights and effects equipments from the elements.

## Products Covered By this Manual:

1800.IN	Twister 1800 Enclosure	230V
1800.US	Twister 1800 Enclosure	120V
1850.IN	Twister 1850 Enclosure	230V
1850.US	Twister 1850 Enclosure	120V
1900.IN	Twister 1900 Enclosure	230V
1900.US	Twister 1900 Enclosure	120V
1950.IN	Twister 1900 Enclosure	230V
1950.US	Twister 1900 Enclosure	120V

## Using This Manual

Please read this manual in its entirety before starting work. All the information contained is important, and should be read carefully before proceeding. Heed all warnings and advisories.

### Icon Key:

① Valuable information







⚡ Electrical Warning

🚫 Safety Information

## 2 Installation

### 2.1 Safety and Warnings

These warnings are for your protection. Failure to comply may result in serious injury or death. Tempest Lighting, Inc. assumes no responsibility for damages or injury incurred by misuse or mishandling of product.

-  **Do not** attempt to install or operate the enclosure before fully reading and understanding this manual
-  **Never** allow anyone who has not read this manual to open the enclosure or perform maintenance on the equipment within.
-  **Never** leave the enclosure unattended when open.
-  **Always** make sure all bolts and latches are tight and safety locks are in place after performing any form of maintenance on the unit.
-  **Do not** open any electrical boxes until power has been shut off to all supply lines to the enclosure (including the one powering the equipment).
-  **Do not** open the enclosure in wet weather.

### 2.2 Tools and Equipment

To install the enclosure, you will need the following items:

- ① Crescent wrench
- ① Phillips screwdriver
- ① Terminal screwdriver
- ① Proper wiring installation equipment (for line power and signal wiring)
- ① Any equipment listed in the equipment manufacturer's equipment-specific installation directions

### 2.3 Mounting the Twister Enclosure

- ① The Twister enclosure must be mounted on or under a solid structure rated for the weight of the enclosure, the equipment inside it, and at least one person.
- ① Snow – if installed outside in cold regions, the bottom of the Twister enclosure must be at least 2' (60cm) above maximum height of any snowfall or drifting snow, subject to local conditions. If snow is not a consideration, then enclosure may sit on the ground as long as proper drainage is provided.

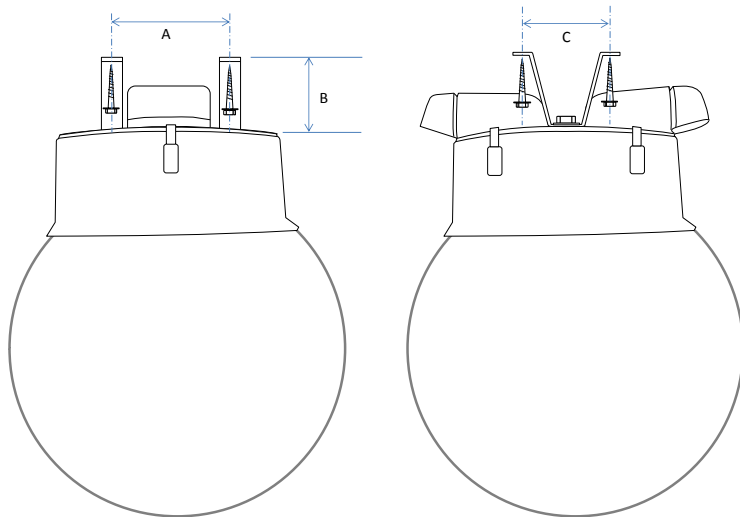
① LEAVE ADEQUATE CLEARANCE BEHIND ENCLOSURE FOR WIRING AND VENTILATION COWLS

① *Tempest Lighting recommends the use of stainless steel mounting hardware.*

The Twister enclosure is provided with two mounting brackets for wall, floor or ceiling mounting. Wall anchors and screws are not provided and must comply with local building codes and safety regulations.

Twister may also be installed using Tempest Pipe Clamps or conventional hanging clamps fitted to the two holes in the base for either ½" US or M12 hardware.

#### Dimensions for Twister mounting Brackets



*Using the mounting brackets provided, secure with two screws or bolts each to a solid surface or structure. Max screw size 3/8"/M10.*

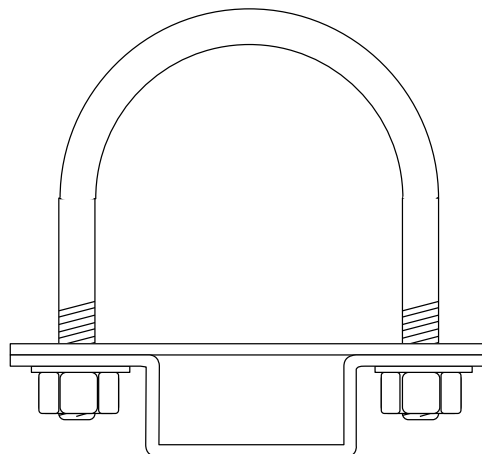
	A	B	C
Twister 1800	8.25"/210	4.75"/121	3.0"/76
Twister 1850	15.5"/394	4.75"/121	6.0"/152
Twister 1900	15.5"/394	4.75"/121	6.0"/152

***It is the responsibility of the installer to ensure that all mounting points are secure and conform to local safety regulations. Tempest Lighting Inc. accepts no responsibility for damage or injury arising from inappropriate or unsafe installation.***

Mount Twister to a pipe or truss using two Tempest stainless steel U-bolt kits:

**4900.MCT** *Stainless Steel Unistrut channel nut, bolt and pipe clamp, for pipes 1.5" (38mm) to 2" (50mm) OD. Two required per enclosure.*

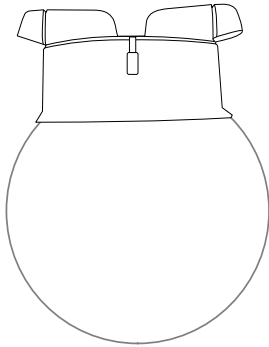
**4925.MCT** *Stainless Steel Unistrut channel nut, bolt and pipe clamp, for pipes 2" (50mm) to 2.5" (64mm) OD. Two required per enclosure.*



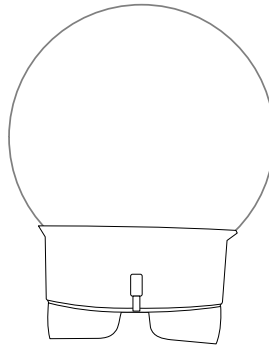
## 2.4 Mounting Orientation

All Twister enclosures are designed to be mounted either base-down, base-up or horizontal, on a solid structure, using the mounting hardware described above.

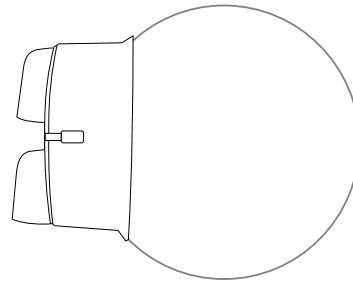
Base Up  
*(see 2.5.1 below)*



Base Down  
*(see 2.5.2 below)*



Horizontal  
*(see 2.5.3 below)*

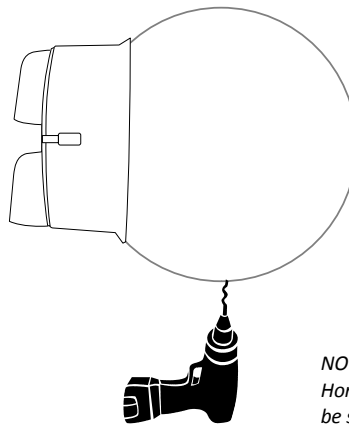
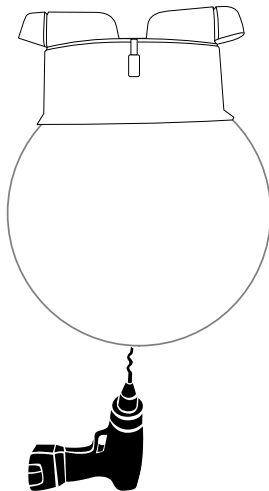


Note that the air inlet and exhaust cowls are trimmed and oriented differently, depending on the mounting orientation. See next section for detailed instructions.

### 2.4.1 Weep Holes

For Base up and horizontal installation, it is necessary to drill a drainage hole at the lowest point of the globe.

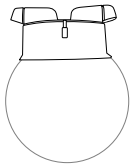
**USE ONLY THE SPECIAL ACRYLIC TAPERED DRILL BIT SUPPLIED WITH YOUR TWISTER MANUAL. A regular bit may crack the globe. Tempest Lighting Inc. accepts no responsibility for such damage.**



**NOTE:**  
 Horizontal enclosures –  
 be sure to always  
 replace the globe with  
 the weep holes down.

## 2.5 Air inlet and Exhaust Cowls

Twister enclosures are supplied with two plastic cowls and filters for the air inlet and exhaust vents. Use of the cowls differs according to the orientation of the enclosures

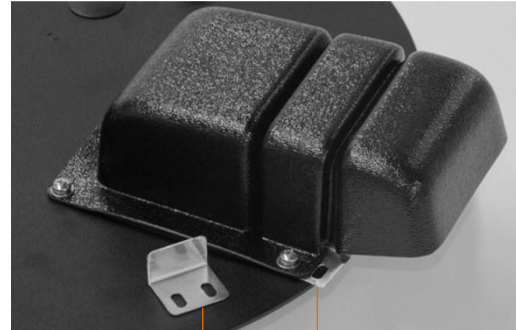


### 2.5.1 Base-Up Installation

Insert the two filters into the cowl slots.

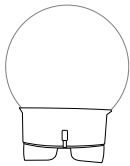
Insert two rain guards between the plastic cowl and the Twister base as shown

Mount the cowls and rain guards onto the Twister base plate, using the screws provided



Rain guard

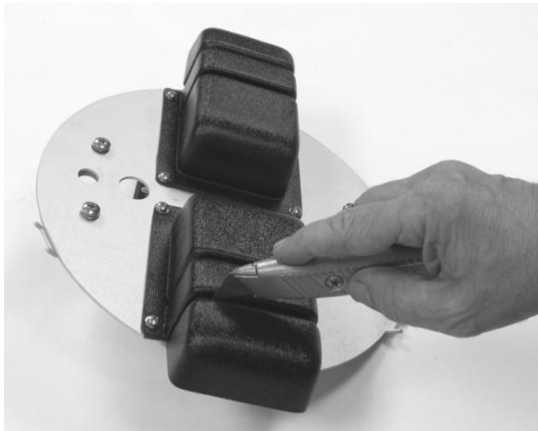
Rain guard location



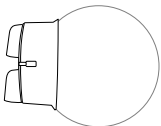
### 2.5.2 Base-Down Installation

Insert filters and mount as shown.

Using a sharp box-cutter knife, remove the outer chambers of the inlet and exhaust cowls.

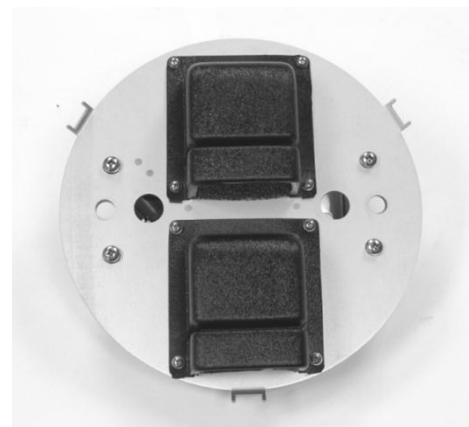


### 2.5.3 Horizontal Installation



First, trim the outer chambers of the inlet and exhaust cowls, using a sharp knife, as described above for base-down installation.

Mount both cowls onto the Twister base plate, with the filter end facing DOWN, as shown.



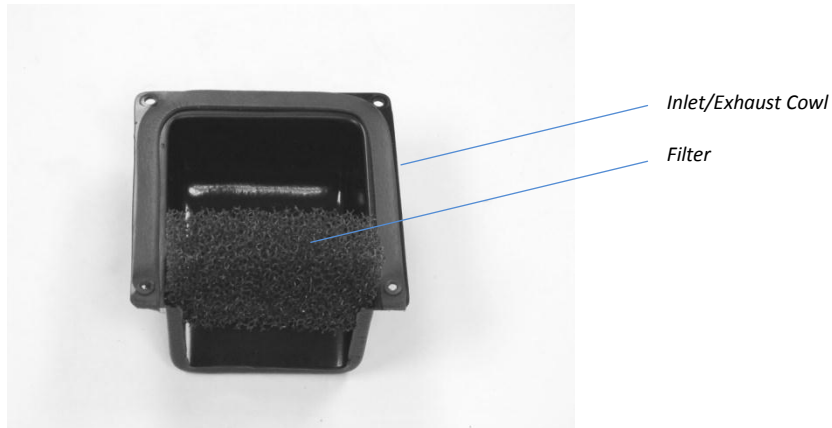
## 2.6 Air Filters

Note that both cowls are fitted with electrostatic air filters, to prevent ingress of dust and insects.

Both filters must always be in place.

You will need to remove the filters periodically for cleaning. How often will depend on local conditions. We recommend checking every three months and then determining frequency of cleaning depending on what you find.

To clean the filters, simply run them under a tap or water hose. Replace carefully between the ribs in the air cowls. Cowls do not need to be removed – this picture is for illustration only.

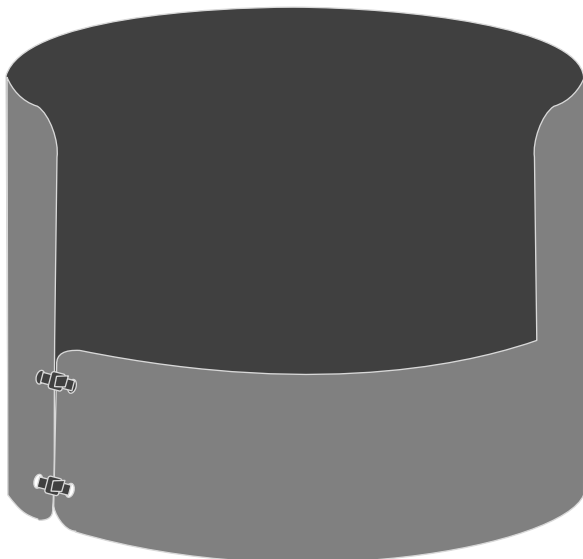


## 2.7 Fan Chimney (Twister 1900/1950)

The Fan Chimney is supplied with larger Twister enclosures and is required for use with luminaires using the Philips 5R and 15R lamp, which is very sensitive to elevated temperatures. The fan chimney ducts the incoming airflow from the fan into the top of the globe for more effective cooling.

Wrap the fan chimney around the fan, high side outside, and secure using the zip ties provided.

The fan chimney is soft, and will conform to the base of the luminaire as well as to the inside of the globe assembly. It may be trimmed with sharp scissors if needed.





## 3 Wiring

### 3.1 Electrical Preparation

- ⚡ **All electrical work must be carried out by a properly licensed electrician. Failure to observe this point will void the factory warranty for the Tempest Enclosure and possibly the equipment housed inside.**
- 1 Before starting work, switch off power to the branch circuit, carefully following lockout and tag-out procedures. Failure to do so could cause serious injury or death.
  - 2 Two electrical junction boxes will be required within a short distance of the Twister enclosure for:
    - AC supply wiring
    - DMX control wiring

Your Twister enclosure is supplied fitted with two cable entry points, for Power and DMX signal cables.

The cable entries are suitable for use with standard conduit fittings. US size ½", international 20mm. Tempest recommends the use of flexible, outdoor-rated conduit for the last few feet (1 m) to the enclosure.

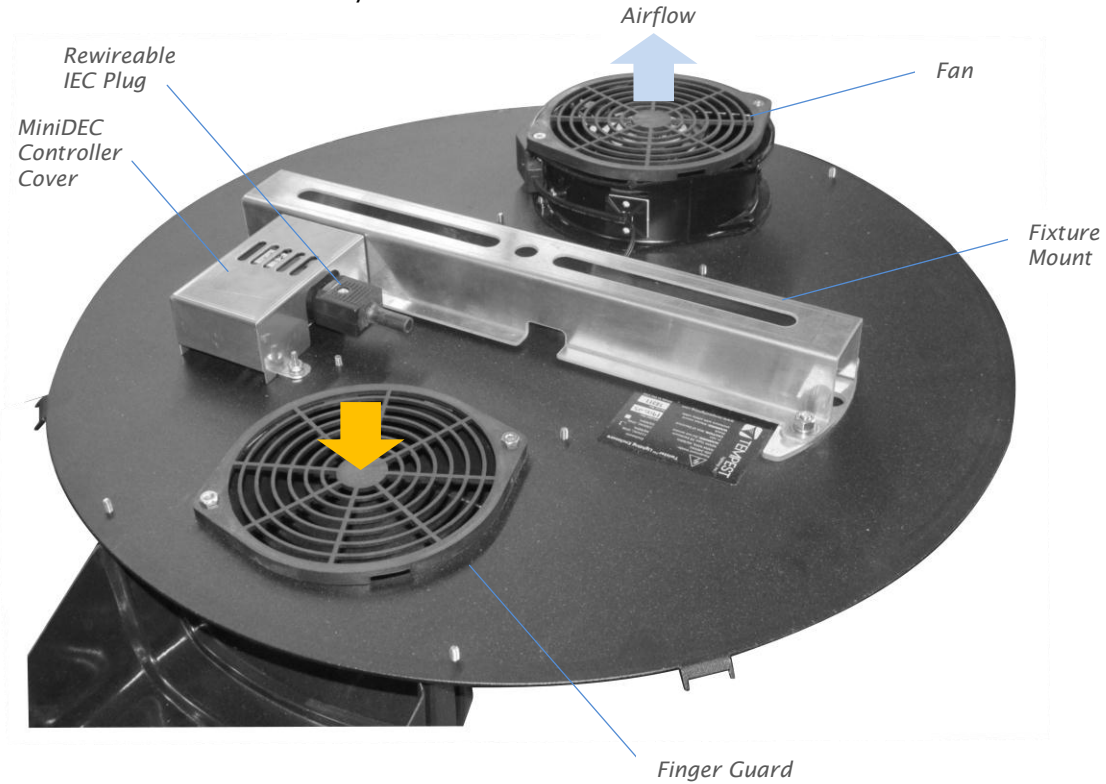
All junction boxes must be installed in accordance with local electrical codes and should be located near the permanent installation of the enclosure. Each junction box requires a length of flexible conduit, long enough to reach from the junction box to the enclosure conduit fittings. Leave slack for positioning of enclosure, and enough space behind the enclosure for ventilation.

The AC supply must be protected by a fuse or circuit breaker of a rating suitable for the equipment.

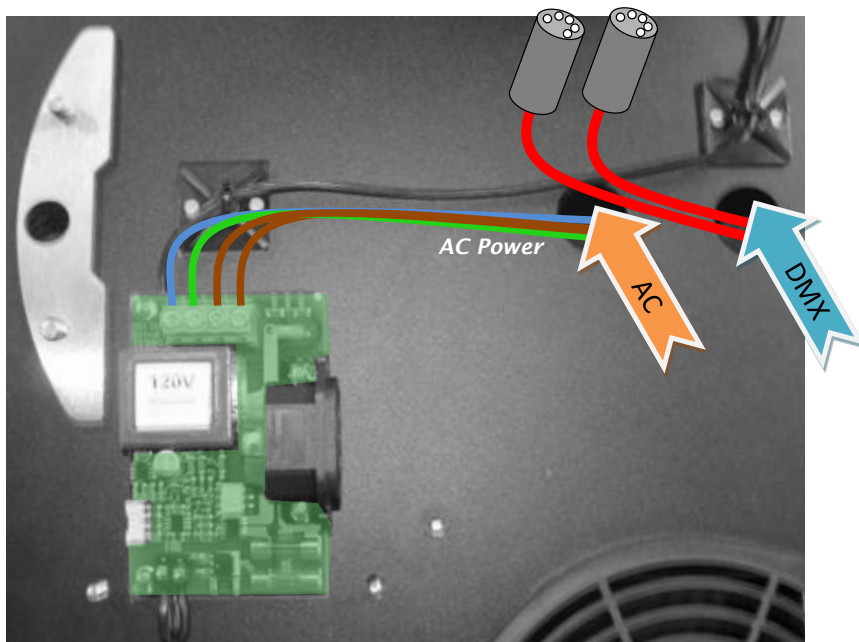
The user may connect the fan and the equipment to the same switched supply, or run them separately, according to need (see below).

Note that for temporary installation, the conduit fittings may be replaced with outdoor-rated cable entry glands, at the user's discretion.

### 3.2 Remove the Globe Assembly.

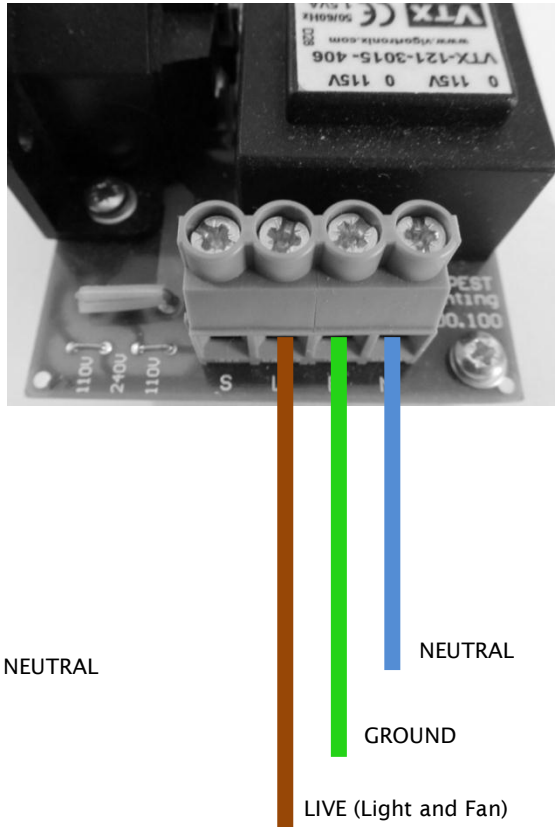


### 3.3 Remove the Fixture Mount and the MiniDEC Cover, and pull AC and DMX control wires through conduit entries, as shown here.

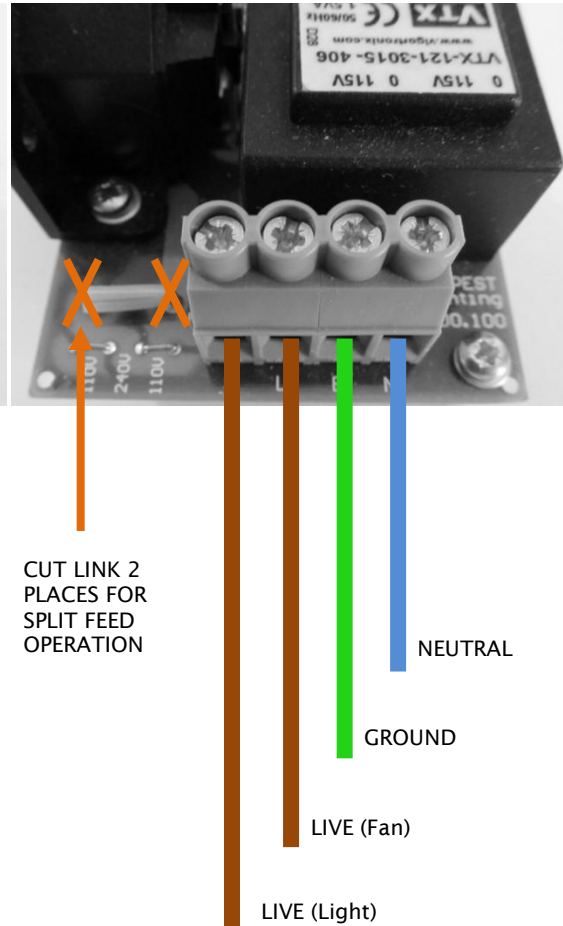


### 3.4 Connect AC Wiring to MiniDEC Controller

#### Single Feed Operation



#### Split Feed Operation



#### Single Feed Wiring

Feed the controller with a single maintained supply. The enclosure should be powered 24/7. The light must be switched off when needed using the lighting control system.

Twister ships configured for single feed wiring operation.

#### Dual Feed Wiring

You may switch off the supply to the light without interfering with the cooling fan operation. Connect feeder wires as shown, **AND CUT THE COPPER LINK ON THE MiniDEC BOARD IN TWO PLACES**, AS SHOWN. Fan circuit should be maintained 24/7.

### 3.5 Replace MiniDEC Cover

## MiniDEC Operation





The MiniDEC controller monitors current going to the light fixture inside the Twister enclosure, and also heat inside the enclosure. When it detects that the light is on and/or the internal temperature is getting warm, MiniDEC runs the enclosure fan. For best results, enclosures must be connected to live power at all times.

MiniDEC Operation is completely automatic.


Summary:	MiniDEC detects current to light >1.5amps	Fan on
	MiniDEC detects current to light drop below 1amp	5-minute fan cool-down, then fan off
	MiniDEC detects temperature 25-35°C (77-95°F)	Pulse fan to change air every minute
	MiniDEC detects temperature >35°C (95°F)	Switch Fan on

## MiniDEC LED Indicator

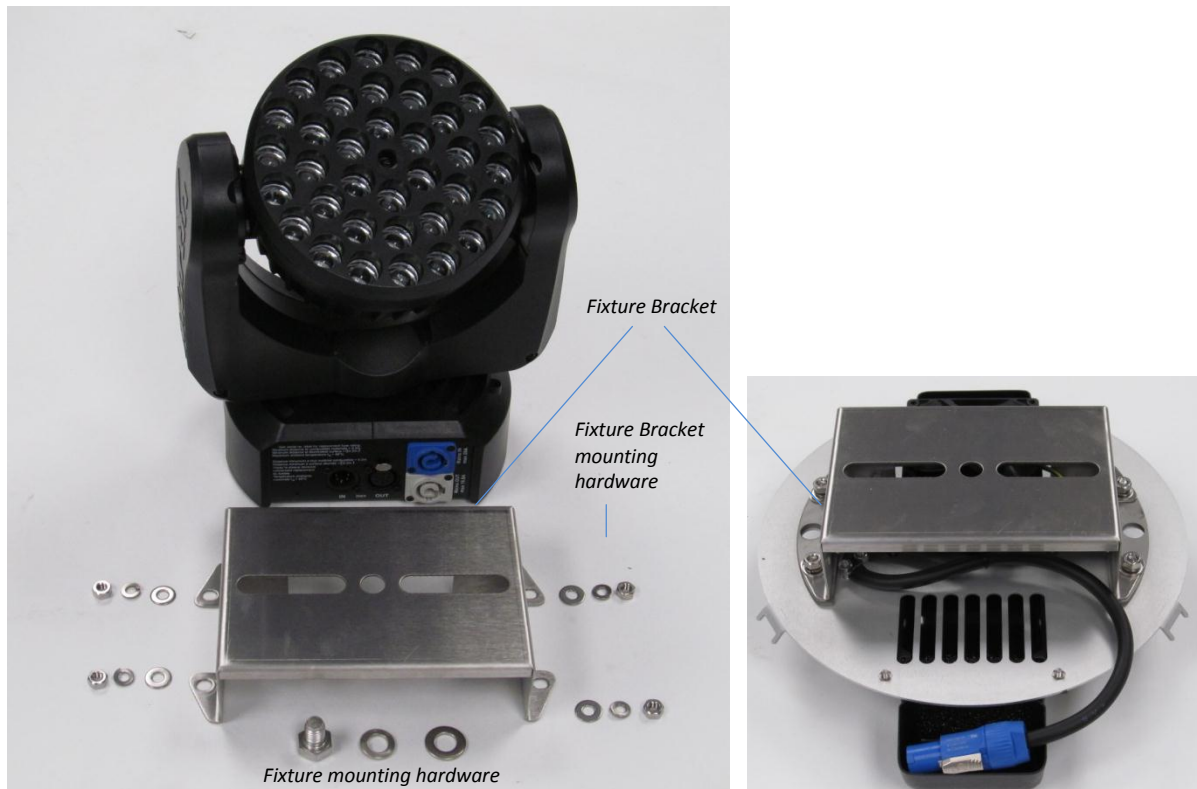
For information and Faultfinding there is an LED indicator on the MiniDEC control board. Function as follows:

-  LED OFF: MiniDEC is not powered, or power supply has failed.
-  LED ON: MiniDEC is functioning normally and luminaire power is < 1amp
-  LED blinking slowly: Luminaire Power > 1 amp, fan on
-  LED blinking rapidly: Luminaire power has dropped below 1amp. Fan is running for five minutes for five-minute cool-down

## 4 Mounting the Luminaire in the Twister Enclosure

 If the Twister enclosure is suspended from a ceiling or overhang, this must be done by two people.

### 4.1 Mounting Smaller Luminaires without Omega Clamps

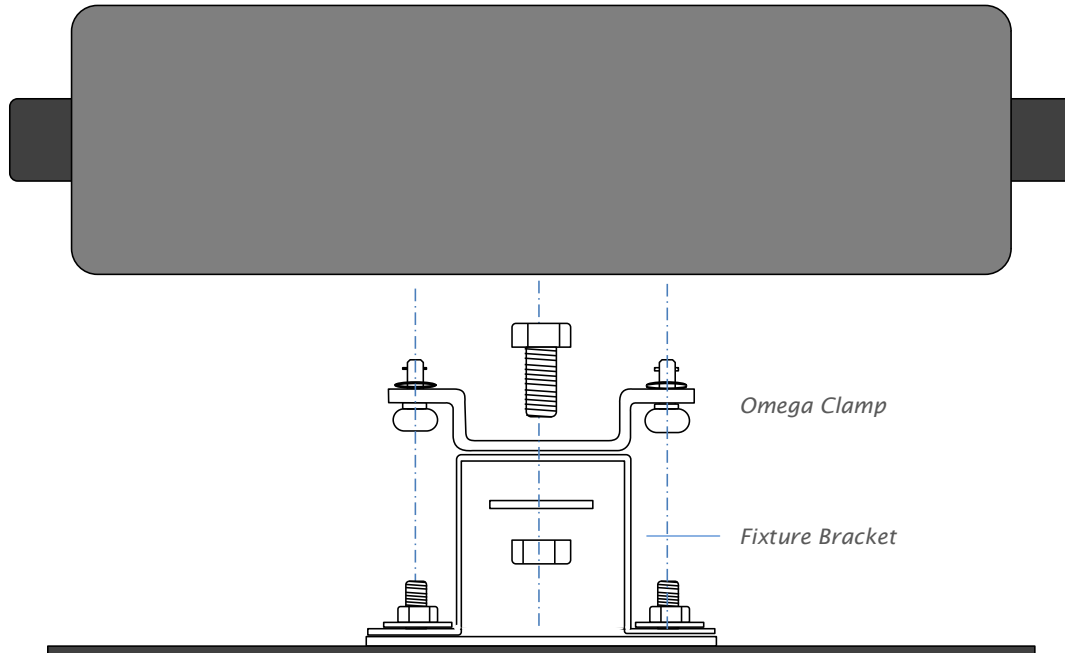


1. Remove the Fixture bracket from the enclosure base. Keep the fixture bracket mounting hardware safely for re-use.
2. Check that the open side of the Fixture bracket is facing you.
3. Using the fixture mounting hardware supplied with the luminaire, bolt through the underside of the bracket into the threaded hole in the fixture base.
4. Replace the fixture bracket and the fixture on the Twister base, and tighten down the four fixing nuts.

## 4.2 Mounting Luminaires using omega clamps

Many light fixtures are supplied with one or more omega clamps for mounting.

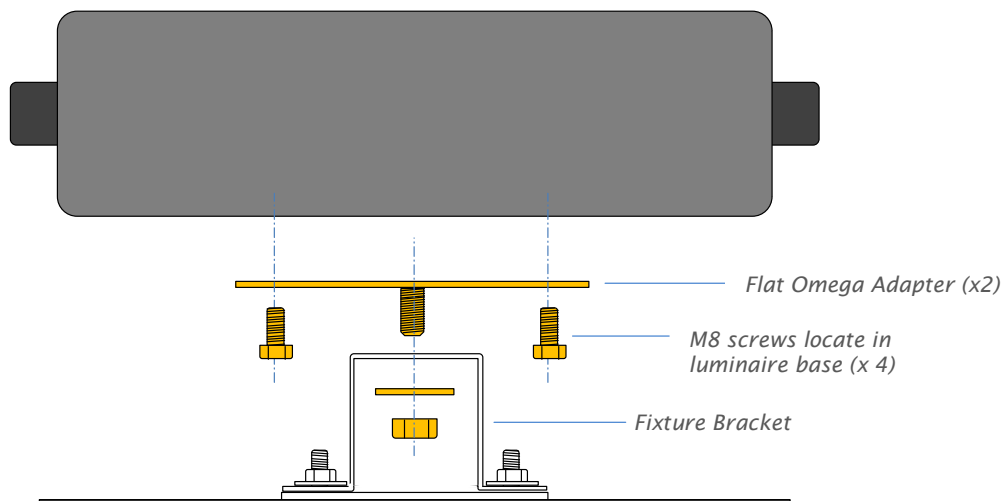
Mount the omega clamp(s) to the fixture base, following the manufacturer's instructions, and bolt the omega clamps to the Twister fixture bracket, before re-installing the fixture bracket to the fixture base.



## 4.3 – Chauvet Q-Spot 560 LED – Mounting in Twister 1900

This luminaire requires a special mounting kit available from Tempest Lighting or your Chauvet dealer.

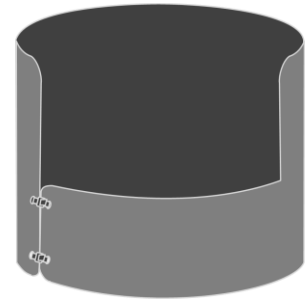
Item # 1900.560K.



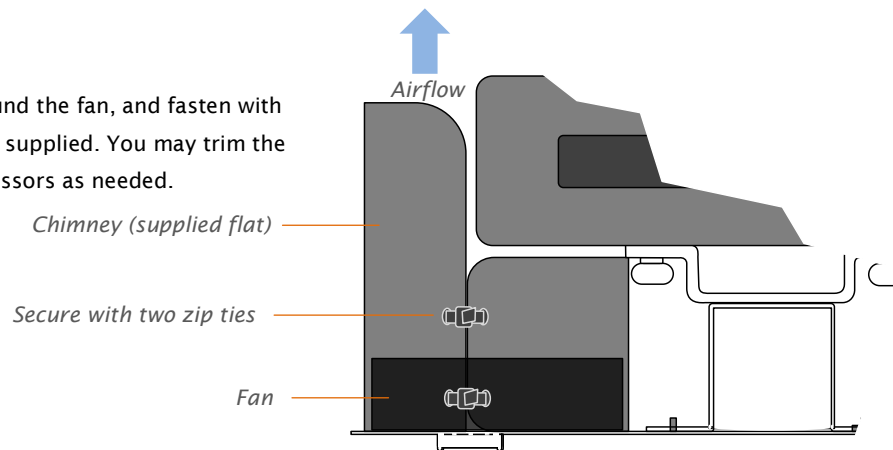
#### 4.4 Use of Twister 1900 Fan Chimney

The fan chimney accessory is supplied with the Twister 1900 enclosure to assist air circulation in cases where the luminaire base tends to obstruct airflow, or where particularly temperature-sensitive lamps are used, such as the Philips Platinum series. The chimney accessory is only needed if the luminaire is overheating, and is not required for most luminaires.

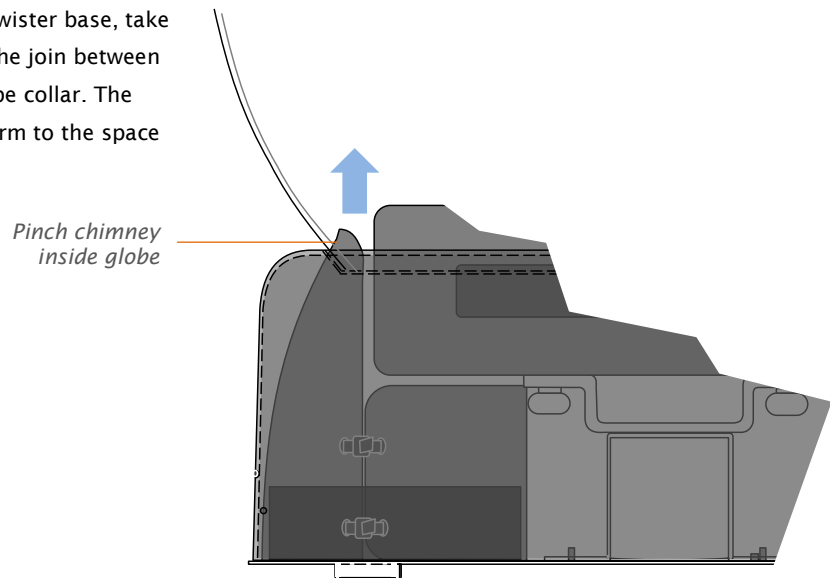
The Chimney is a flexible duct that helps the incoming cool air from the fan blow up to the top of the globe.



- 1 Wrap the chimney around the fan, and fasten with the two plastic zip-ties supplied. You may trim the chimney with sharp scissors as needed.



- 2 When placing the globe on the Twister base, take care that the chimney is INSIDE the join between the globe and the aluminum globe collar. The chimney will spread out to conform to the space available



#### 4.5 Connect Luminaire power and DMX

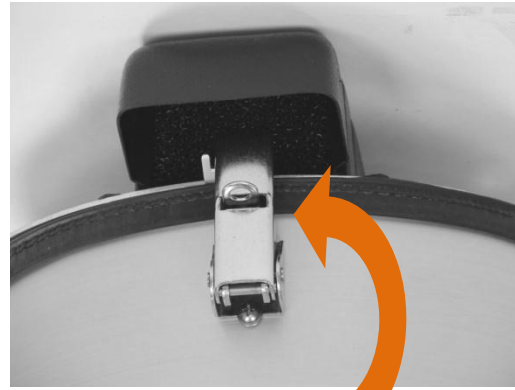
Connect the DMX IN and OUT luminaire connections as specified by the luminaire manufacturer

Connect the luminaire power cable to the IEC outlet provided on the MiniDEC controller. If necessary, shorten the length of the luminaire power cord and install the rewirable IEC plug provided with your Twister enclosure.

#### 4.6 Latch Adjustment and Security



*The latch tension is adjusted by turning the screw - clockwise to tension, anti-clockwise to loosen.*



*Insert a padlock in one or more security rings for additional security.*



## 5 Operation

While there are no specific operational actions required for normal use, the following points should be kept in mind.

- ① The enclosure should be connected to a live circuit at all times except when maintenance is being carried out.
- ① Unless the enclosure or equipment is undergoing routine maintenance, the enclosure should be closed and securely latched at all times.
- ① Only authorized personnel should open the enclosure (see maintenance warnings in the next chapter).





## 6 Routine Maintenance

It is very important to perform routine maintenance on both the enclosure and the equipment inside it. Failure to do so may reduce lifetime for both the enclosure and the equipment.

### **Note**

*Maintenance schedules depend on location and environment. The intervals given here are general minimum guidelines. It is up to the user to judge whether maintenance should be carried out more frequently. We recommend doing these tasks no less often than mentioned here.*

### **Safety**

-  As the enclosure is a powered unit with moving parts, it is necessary to keep safety in mind while performing routine maintenance. Although maintenance can be performed while the enclosure is powered, it is safer to carry it out with the power disconnected with proper lockout and tag out procedures followed.
-  Be aware that once the enclosure has had power applied to it, the fan will start to turn. Make sure that your hands are clear of the fan before applying power to the enclosure.
-  Only authorized personnel should perform maintenance on the enclosure or equipment
-  Do not service the unit in the rain or other adverse weather conditions (snow, sleet, high winds, etc.).

### **Inspection Checklist: - Every Three (3) Months**

- ☐ Glass should be clean and free of cracks
- ☐ Enclosure should be free of debris both inside and out
- ☐ Bolts and tie-down straps should be tight
- ☐ Rubber seals should be in good condition. Check seals inside and out for gaps.
- ☐ Fan should be functioning and not making excessive noise
- ☐ Filters should be clean
- ☐ Drainage holes must be free of obstructions



### **Air Filter - Every Three (3) Months**

Both air filters should be removed and cleaned on a regular basis. To remove filter, pull it directly out of the intake vent. The filters can be cleaned by running water from a hose and do not require any special solution.

To reinstall, carefully push filter back into the cowl molding. The filter should sit snugly between the cowl ribs.

**Case - As Needed**

The outside of the case should be cleaned as needed. The case should be cleaned with a wet cloth and mild detergent (if necessary). Do not use a direct spray from a hose to clean the case.

**Globe – As Needed**

Clean using a proprietary acrylic cleaning solution or a mild detergent, and wipe dry. Use only soft, lint-free cloths for globe cleaning. Never use an abrasive cleaner.

**Equipment**

Review the manufacturer's instructions for proper maintenance of your Luminaire. Remember, the enclosure simply protects the equipment inside it and is not a substitute for regular maintenance.

## 7 Troubleshooting

This is a guide to the general symptoms, problems, and solutions that may occur during the usage of your enclosure. However, it is important to remember that problems may occur within the equipment itself and these must also be considered.

### **Equipment does not have power.**

Check power supply wiring and voltage.

### **Fan is not spinning**

Fan cord may have become disconnected. Check connections between fan and cord.

Fan may be obstructed. Shut off power to enclosure and check for obstructions. Turn power back on to see if fan will start spinning. If fan does not turn then enclosure is not receiving power.

Turn off all power and check wiring. If the wiring is correct, contact technical support.

### **Equipment does not have power.**

Check equipment power switch. If switch is on, check wiring and supply switch/circuit breaker.

### **Equipment turns on and off repeatedly over short span of time.**

Check that vent areas and airways are clear. If so, ambient temperature may be too high, or equipment may have internal problem.

### **Excessive water in enclosure.**

Seal leak. Repair with silicone sealant, or replace seal.

## 8 Limited Warranty

### INSPECTION/WARRANTY/RETURNS.

A. Customer, at its sole expense, shall inspect all Goods promptly upon receipt and accept all Goods that conform to the specifications or catalog. All claims for any alleged defect in or failure of the Goods or Seller's performance to conform to the Contract, capable of discovery upon reasonable inspection, must be set forth in a written rejection notice detailing the alleged non-conformity, and be received by Seller within thirty (30) calendar days of Customer's receipt of the Goods. Failure by Customer to notify Seller of the alleged non-conformity within thirty (30) days will be conclusive proof that the Goods have been received by Customer without defects or damage, and in the quantities specified on the bill of lading and shall constitute an irrevocable acceptance of the Goods and a waiver of any such claim in connection with the Goods.

B. Seller warrants to Customer only that the Goods will be free from defects in material and workmanship at the time of delivery and, subject to the exceptions and conditions set forth below, for the following period (the "Warranty Period"): twelve (12) months from the date of shipment by Seller. Seller may provide additional years of warranty coverage beyond 12 month, at the rate of 2.5% of the net sale price per year, up to a total of four additional years' coverage beyond the standard 12 month warranty period. Seller will remedy a defect as set forth in paragraph 7 D, below, (the "Warranty"). The Warranty is subject to each of the following exceptions and conditions:

1. Customer must promptly (and in all events within the Warranty Period) notify Seller of any alleged defect in a written notice (the "Notice") which shall set forth the quantity, catalog number, finish, original purchase order number, Seller's invoice number on which Goods were originally billed and a statement of the alleged defect, along with digital photographs showing such defects where feasible.

2. The Warranty shall not apply: (i) to any claimed defect that was capable of discovery upon reasonable inspection and deemed to be waived under paragraph A, above; (ii) to any Goods that have been subject to misuse, abnormal service or handling, or altered or modified in design or construction; (iii) to any Goods repaired or serviced by any person other than Seller's authorized service personnel or to Goods installed other than according to installation instructions, or (iv) with respect to normal wear and tear.

3. Seller makes no Warranty with respect to parts or components that are not the product of Seller, and specifically makes no warranty whatsoever for equipment housed inside enclosure products manufactured by Seller.

4. The Warranty is Seller's exclusive warranty with respect to the Goods. Seller makes no warranties, guarantees or representations, express or implied, to Customer except as set forth in this section. ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION ANY IMPLIED WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR USE OR FOR A PARTICULAR PURPOSE, ARE HEREBY EXCLUDED AND DISCLAIMED.

C. Seller will accept the return of Goods properly rejected under paragraph A, above, or as to which Notice of an alleged breach of Warranty has been timely given and such Goods may be returned to Seller, freight prepaid, but only upon Customer's receipt of Seller's written return material authorization ("RMA") and shipping instructions. The RMA shall be void if the Goods are not received within 45 days after issuance of the RMA. No deduction or credit in respect of any rejected or returned Goods shall be taken until Customer has received Seller's further written deduction or credit/authorization following Seller's inspection to confirm nonconformity or defect. Seller will charge to Customer any and all costs incurred by Seller in connection with the handling, shipping, inspection and disposition of any returned Goods that are determined by Seller not to have been nonconforming upon Delivery or as to which the warranty hereunder is not applicable.

D. UPON ANY PROPER RETURN PURSUANT TO PARAGRAPH C, ABOVE, WHETHER IN CONNECTION WITH A REJECTION OF GOODS OR AN ALLEGED BREACH OF WARRANTY AND BASED UPON THE CONDITIONS SET FORTH IN THIS PARAGRAPH 7, SELLER AGREES THAT IT WILL, AS THE SOLE AND EXCLUSIVE REMEDY UNDER THE CONTRACT OR OTHERWISE, FOR ANY NONCONFORMITY OR BREACH OF WARRANTY, AND AT SELLER'S SOLE ELECTION: (i) REPAIR SUCH GOODS; OR (ii) REPLACE SUCH GOODS.

**Tempest Product Support.**

Step 1: First contact your local Dealer for support. Your dealer is best placed to respond quickly to your needs.

Step 2: If your dealer is unable to answer your questions please contact our Sales Office:

Tempest Lighting, Inc.

13110 Saticoy Street, Unit C

North Hollywood, CA 91605, USA

Tel +1 818 787 8984

Fax +1 818 982 5582

[support@tempestlighting.com](mailto:support@tempestlighting.com)

Visit our web site for current information and specifications:

**[www.tempestlighting.com](http://www.tempestlighting.com)**